THE NEWSLETTER
OF THE TORONTO FIELD NATURALISTS' CLUB

Number 37 October, 1943

THE FEDERATION OF ONTARIO NATURALISTS' SUMMER NATURE SCHOOL

We have all known vaguely that "All work and no play makes Jack a dull boy", but only within the last generation has it been shown how vitally important it is for the individual to have adequate rest and recreation if he is to carry on with full efficiency. This is more than ever true to-day under the stress of war-time nervous and physical strain. Individuals vary in their tastes, fortunately perhaps, but more and more are seeking relaxation in the open, not only in the camps and cottages of the north, but walking, cycling and riding in the city parks and on the country roads of southern Ontario. The pleasure of the open is increased a thousandfold to those who know the trees, the plants, the birds that are around them. It isn't just a question of "knowing" in the sense of being able to identify a specimen; those who enjoy the open to the full are those whose ears and eyes are trained to hear and see. With this training they are constantly noticing things of interest which their unobservant fellows pass by. Once started on this path, every stroll along a country road, or even a tree-lined city street, is an opportunity for seeing what had previously been unnoticed. For birds and other animals, and even most of our wild flowers, do not thrust themselves upon us; they must be looked for and noticed, hence the haturalist has the constant delight of looking and finding, and thereby solving some small problem through his own efforts. And only those who have reached this point know the rest and wholesome satisfaction that comes from nature study.

Much can be learned from books, but the best way of getting to know birds or plants, insects or reptiles, is by going to the woods with a good leader. It isn't a question of formal teaching, it is a question of learning. A good leader is one who points out in passing that oven-birds are found among maples and birches; that dragon-flies change as one passes from swift-flowing streams to quiet pools; that "that" is the croak of a wood-frog, and "that" is a leopard frog. And so for the thousand and one observations that can be made on any country ramble. It isn't enough to announce what he has heard, a good leader wants to see what his quick ear has located, and he stops his group to stand or sit until, with patience, what has first been heard comes into sight - for sound is only an aid to identification. Perhaps most important of all, a good leader is one who can say "I don't know that plant, let's run it down in the key", or "That 'chip' is a warbler, you go to that side of the thicket, I'll stay on this, and one of us will have a chance to see it". Even the most experienced naturalist is constantly learning - that is one of the delights of nature study.

The aim of the Federation of Ontario Naturalists' Summer Nature School, 1943, was to give its members two weeks of solid study in the woods under competent leadership. Ideally there should be a leader for every three or four students; that is impossible, but our groups for birds (the most elusive subjects) were never more than ten, and for plants only a trifle larger. I think everyone at Joe Lake this summer really saw and learned a great deal, and had a thoroughly good time - I know I did. But apart from giving our members an opportunity to learn about nature, the Nature School tried to help them to help others to have similar pleasure. A naturalist isn't selfish, and we hope and believe that those who spent two weeks with us will spread what they learnt, and how they learnt it, among members of nature clubs, among school children, and others with whom they come in contact. An enjoyment of nature makes for an intelligent appreciation of the natural resources of our country and the need for their conservation. The Nature School aimed to give its members a fuller enjoyment of life, and hence to build better and happier citizens.

T. F. McIlwraith.

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SUMMER NATURE SCHOOL 1943

Joe Lake, Algonquin Park was the field of exploration for the Fifth Annual Summer Nature School sponsored by the Federation of Ontario Naturalists. Thirty-two students

spent a very profitable two weeks (July 3-19th) under the genial and able leadership of Mr. A.J.V.Lehmann (plants), Dr. E.M.Walker (insects) and Mr. J.L.Baillie Jr. (birds). Mr. T.F.McIlwraith, Chairman of the Board of Directors of the Federation of Ontario Naturalists was also one of our number this year. He contributed indefatigable enthusiasm and able assistance in adding to the numbers of the bird list.

As in other years, the program was very flexible and informal. Each person followed his own interest and took the field trips that promised most for him. There were field trips at all hours of the day; bird walks at six a.m. and moonlight walks at midnight to see the bears and listen for owls. There were all day hikes and shorter ones to study plants, trees, insects and anything else that came along.

We frequently saw wild animals quite near the hotel. The deer were so tame that they came to the kitchen door for bread. Some of our party, sleeping in tents, had the thrill of having a bear come snuffing around in the wee small hours. A piece of cheesecloth between you and a bear hardly seems like adequate protection. Beaver were often seen along the shores of the lakes. One evening we watched one harvesting bracken and swimming off with it over his shoulder. Mr. Lehmann had the good fortune to see an otter with its two kittens. Nearly everyone in our party had some adventure with animals in their native environment.

To provide space for laboratory work and for the display of specimens, a large marquee was erected near Hotel Algonquin which was our headquarters. The arrangements committee worked magic, no more, no less, in constructing work tables out of stray pieces of lumber, packing boxes and slabs from the woodpile. It was impossible to buy lumber from the near-by sawmill even for tent floors. Their total production was needed for other purposes.

All groups joined in the general discussion held on the large porch of the hotel, immediately after lunch each day. At this meeting the findings of the various groups were reported and commented upon. This gave each person a chance to share in the activities of all the groups. At this meeting too, plans for the next twenty-four hours were arranged according to the desires of the group as a whole.

Informal talks were given by our leaders on several evenings on the porch of the hotel. Prof. J.R.Dymond visited the school on July 6th and gave us a talk on the physical features of the Park and how these conditions affected the fish in the various lakes.

On July 8th, Mr. J.L.Baillie Jr. gave a talk on the warblers which were abundant all around us. He told us of their habits, their songs and where their nests were located. He pointed out characteristic markings of each species that would aid in identification. This was demonstrated by the display of bird skins of the warblers that we were likely to see in the Park.

Prof. T.F.McIlwraith, on July 10th, told us about "The Indians of North America". He stressed the diversity of living conditions, of language, of government, and of general cultural development of Indians living in the different parts of the continent. Algonquin-Park, of course, takes its name from the tribe of Indians belonging to the Algonkian group, who lived in that part of the country.

A general talk on "Insects" was given by Dr. E.M.Walker on July 12th. Insects are animals whose bodies are in sections, he told us. The life histories of several types of insects were discussed. The adaptation to their environment, of the structure of insects in their various stages was developed. A maggot living within its food doesn't need a hard outer covering for protection nor special appendages for securing food, but a dragonfly nymph needs both.

"The Green Plant" was the subject of Mr. A.J.V.Lehmann's talk on July 15th. Plants should be studied in relation to their environment. An understanding of the plant's ability to get its living from the soil and the air is far more essential than the name which man has given it. Plants are absolutely essential to man as the basis of all his food, but man is not essential to plant life. Each man needs 240 sq. yards of leaf working for him all day, all through the growing season, in order to live.

But don't judge by all this that we had no time for fun. The amount of talent and spontaneous hilarity that can be found in a group of naturalists is nothing short of

amazing. We had only one campfire this year because the wind and the rain did not favor us, but we made the rafters ring with our sing-songs and impromptu stunts on several evenings. One evening was whole-heartedly devoted to a Treasure Hunt.

(Mrs. L.E.) B. E. JAQUITH

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PLANTS

Once upon a time in Algonquin Park history, Joe Lake was more beautiful than it is today. Along its shores stood cedar in some profusion. When the water was raised to control lumbering operations the border of cedar died and for over twenty years the old logs and bleak roots have persisted, floating here and there or stranded along the margin, apparently refusing to disintegrate.

Plants of the district are characteristic of a northern locality where fires and lumbering have removed most of the original forest. Close to the hotel the dominant trees were poplar and white birch. About two miles down the Canoe Lake road a stand of hardwood was observed with mature maple and yellow birch ready for cutting if they are to be saved from waste. Along this road too was a small black spruce swamp to which an abandoned railroad spur gave easy access. The same spur began in an extensive sand pit, so deeply cut into the original valley that the water level lay only a few inches below the surface. Here swamp plants and alder thickets lead to the "desert" of the higher slopes. On the forest floor, the most abundant plant was the diminutive shrubby bunchberry (Cornus canadensis), which carpeted every opening.

During the two-week school term about 250 species were listed. While this number indicates a somewhat more restricted flora than at other Nature School locations it should be remembered that in plant studies not too much emphasis should be placed on the amassing of an impressive numerical list, nor upon the routine identification of specimens. Some familiarity with the commoner species is desirable, as well as the ability to identify a plant using standard keys, but in short term studies more can be gained by thinking of plant associations and successions of growth. In this connection small lakes and ponds, completely or partly overgrown, offered excellent opportunities for observing how submerged forms had been replaced by rooted types, these by invading sedges or perhaps by Sphagnum mats which in turn were superseded by the shrubs, larch trees and black spruce, and eventually by the dominant forest species. Each of these associations might be studied itself or as a step in the marching forest.

Another example of how changes may occur was found in a small burned area on one of the islands, where a single pine survivor had reforested its immediate vicinity. A similar burn on the mainland stood in birch and poplar.

In aquatic and bog environments aeration of the substrate is low and the supply of nitrates is limited. Here were found insectivorous plants in which considerable interest was apparent. One of these was pitcher plant (Sarracenia purpurea), which showed to advantage in the bogs with its reddish flowers and urn-shaped leaves partially filled with water. Upending a leaf usually revealed a number of insects in various stages of decomposition. Two species of sundew were common (Drosera rotundifolia and D. longifolia), even along the railroad track these little plants glistened in the wet ditches, their leaves dotted with glandular spines, each with a sticky, honey-coloured drop. It is a more active plant than Sarracenia, the spines reacting to the touch; when an insect is entangled, adjacent spines bend toward the spot until the whole leaf may be folded over the captive. A third insect trapper observed by everyone at the school, was bladderwort (Utricularia sp.), with finely dissected submerged leaves some of which were modified to form little bladder-like containers in which small crustaceans and other animals may be imprisoned. The temptation here is strong to think in terms of "need" and "use" of this animal protein but proof is lacking that these plants make any individual use of such rich sources of nitrogenous material. Sundew was seen on the railroad track with a leaf closely folded over nothing more nutritous than a cinder.

One pleasant field trip was made by canoe to investigate reports of a floating island. This proved to be a fragment of a nearby bog, detached by beaver cuttings and storm action. Perhaps it is a question of what constitutes an island, certainly the presence of four struggling trees did not justify the name. It was a raft or floating mattress of vegetation held together by the woody roots of bog shrubs, Andromeda, Chamaedaphne, Myrica and Vaccinium. The interstices were filled by Sphagnum, Sarracenia, the two Droseras, three sedge species, marsh cinquefoil, an occasional spatterdock and here and there the spectacular little bog orchids Calopogon and Pogonia. Probably the "island" will disintegrate, perhaps being replaced many times before the shallow bay is filled by plant debris and is taken over by the forest.

Another short canoe trip was substituted for one of the afternoon laboratory periods. In addition to several "new" species for the district this group discovered blueberries on a rocky outcropping. Neither black flies nor a hot July sun could restrain them, oblivious of the fact that about four species of Vaccinium were represented, each with its series of identifying characteristics, the plant group finding an economic plant were prepared to exploit it. Which suggests perhaps that field trips may be useful and even palatable.

A.J.V.LEHMANN

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INSECTS

The most interesting discovery made by the insect group was probably the finding of lace-wings (Chrysopa), each carrying a pair of tiny flies symmetrically placed on their front wings. The lace-wings were flying in a dry clearing a little west of the Canoe Lake Station. Through an accident the passenger flies on the specimens collected were lost and, when some days later we returned to the spot to look for more lace-wings, all had vanished. One lace-wing bearing flies was, however, found in another locality and was placed in a vial with the two flies, one of which it apparently devoured.

We can only conjecture as to the nature of this association. The larval lace-wing feeds upon aphids and the small flies are probably parasitic on the same insects and use the adult lace-wings as a means of transport to aphid colonies. Although the fly has not yet been identified, it may well belong to a small group which are known as aphid parasites.

The outbreak of the Spruce Budworm, which has spread over a large part of Algonquin Park in recent years, covers all the region in which our observations were made. It is primarily an enemy of the balsam fir rather than the spruce and kills nearly all the mature balsams which it attacks. When we arrived on July 1st the moths had practically all emerged and were flying about the trees in thousands. No further damage will be done until next spring when the young caterpillars begin to feed on the opening buds.

No other serious defoliaters were observed but local damage to alder foliage by a leaf-eating beetle (Lina interrupta) was noted in several spots and all stages of the insects were found - eggs, larvae of various sizes, pupae and adults.

Damage by wood-boring beetles was not much in evidence but specimens of all three of the long-horned beetles known as sawyers were taken and the general features of their work demonstrated. These are the beetles whose grubs are so often heard as their jaws crunch the wood of recently killed pines and spruces. The black sawyer (Monochamus scutellatus)was often seen. The large gray sawyer (M. confusor) and the beautifully marbled balsam sawyer (M. marmorator) only once.

The metallic wood-borers (Buprestidae) were represented by several species, the commonest being Dicerca diranicator, a large bronzy beetle with the tips of its wing covers turned out. It was found about hardwood piles, particularly the yellow birch logs at the sawmill. The largest buprestid was Chalcophora virginiensis, which is a borer of coniferous trees but is much less injurious than the sawyers.

Beetles of many other families were collected, special attention being given by Virginia Kohler to the carrion beetles.

Butterflies were rather scarce, except a few common species, such as the White-banded Purple (Basilarchia arthemis), the Silver-spotted Fritillaries (Argynnis cybele and Brenthis myrina) and various Skippers. One of the most characteristic butterflies of the region is Colias interior, which is very like the common yellow clover butterfly (C. philodice) but feeds in the larval stage on blueberry leaves.

Among the more unusual butterflies were Harris' Checkered Butterfly (Melitaea harrisi), a small northern meadow-brown (Coenonympha inornata) and the Wanderer (Feniseca tarquniius) The last is a strange little butterfly whose larva is exceptional among caterpillars in being carnivorous. It feeds on the wooly aphids of the alder, known as "alder blight". The single specimen found was taken at night resting on the ousdiee of one of the hotel windows, apparently attracted by the light, although a day-flying insect.

Some sugaring for moths was done by Virginia Kohler and Mary Light but the results were not encouraging. Nevertheless they captured a fine specimen of the Ghost Moth (Sthenopis argenteomaculatus), a large moth of primitive type, which has a peculiar swing flight.

The pond in Sims' Pit afforded a good opportunity for observing aquatic insects. Several of the dragonflies taken here were not seen elsewhere, including two striking Lib ellulae, (L. pulchella and L. lydia,) which, although abundant in southern Ontario, are near their northern limit at this latitude.

Of the 43 species of dragonflies noted during our visit two deserve special mention One of these, Enallagma vesperum, a slender yellow damsel-fly, was not known before from so far north. A number of them were flying at dusk over a marshy corner of Joe Lake. It was the first time we had seen them flying after sundown, a habit most unusual among damselflies. The other dragonfly, Neurocordulia yamaskanensis is still more remarkable in being wholly crepuscular. Its flight around the rocky islands of Joe Lake began promptly at 9 p.m and lasted scarcely half an hour. Males patrolled the shoreline, now and then dashing after one another out over the water with such amazing speed and so close to the surface that only a lucky stroke could net one. We have always associated Neurocordulia with the large mayflies (Hexagenia) which fly at the same hour and on which alone we have seen them feed. These mayflies however were so rare this year that some other insects must have served them as food.

Of other insect groups a word must suffice. One of the most striking of the Hymenoptera (Wasps, Bees, Ants, etc.,) was the huge willow or Elm Sawfly (Cimbex americana) which here apparently favours the alder as a food plant. It resembles a large chestnut and steel blue hornet with a thick waist and clubbed antennae but is quite stingless. The female has a row of creamy polka-dots along the sides of the abdomen. It was unusually common and frequently noticed by various members of the party.

Grasshoppers had not yet come into full force, their season of abundance being August. The most remarkable species in this region is a greenish wingless form, Zubovska glacialis canadensis, a northern insect usually associated with black spruce swamps. Here the nymphs were abundant everywhere on bushes especially the hazel and were just beginning to mature when we left.

Except for the little passenger flies on the lace-wings, nothing exceptional in the Diptera (flies, midges, etc.) was found, although there were many interesting species, such as the hover-flies (Syrphidae), among which are some striking mimics of wasps and bees. Of these we may mention Temnostoma alternans, a fine imitation of a queen yellow jacket, and T. bombylans, which is an equally good copy of a potter wasp (Odynerus). Both of these were found in the vicinity of Joe Lake.

E. M. WALKER.

BIRDS

The enthusiasm displayed by the bird group was an inspiration to the leaders. Two, three and sometimes four or five outings were organized every day and thanks are due to Professor T. F. McIlwraith, President of this club and one of the registrants at the Nature School, for the assistance he provided.

A total of 107 species were identified during the period of the school and breeding evidence secured for 65 of them. The Philadelphia Vireo and Screech Owl (both at Joe Creek dam) were new birds for the Algonquin Park list.

A black spruce forest within a quarter of an hour's walk of the hotel, produced a good sample of boreal birds including Spruce Partridge, Arctic Three-toed Woodpecker, Yellow-bellied Flycatcher, Canada Jay, Hudsonian Chickadee, both Kinglets, Cape May and Bay-breasted Warblers and Pine Siskin.

Highlights of the stay were a flock of Evening Grosbeaks 'round Colson's store and the nest of a Goshawk (with two young) on the portage connecting Rainbow and Loft Lakes.

The Grosbeaks constituted one of the most exciting items on the naturalists' menu. The flock at the store was ever-present and the birds ridiculously tame, flying under the store to pick up salt from the ice-cream cans and small pieces of gravel. About two dozen were present but another flock at the Canoe Lake store and odd individuals here and there elsewhere in the region raised the population to about sixty. The first flying young were noticed on July 10, from which date the size of the flocks received a considerable boost.

The trip in to the Goshawk's nest was a laborous all-day trip through dense bush for certain of the more intrepid members of the bird-group. The nest, reported to us as an osprey's by one of the rangers, proved to be even better than that and a second trip in was made when the report came back that it belonged to a Goshawk. The fact (learned later) that there was an easily travelled old road through the bush from the railroad to the portage on which the nest was located, is beside the point!

Evening Grosbeaks on their breeding grounds and nesting Goshawks are observations sufficiently exciting to cause the 1943 Nature School to be indelibly impressed upon the memories of all participants.

Compared to previous localities visited (Franklin Island, 1939 and 1940 and Limberlost Lodge, 1941 and 1942) bird life was present in greater variety and abundance at Joe Lake and the bird group looks forward to another year in that fascinating area.

J. L. BAILLIE, JR.